REMARKS

Applicant respectfully requests reconsideration of this application in view of the following remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in substantially the same order in which the corresponding issues were raised in the Office Action.

Status of the Claims

Claims 1-11, 14-20, and 22-24 are pending. No claims are currently amended. No claims are canceled. No claims are added. No new matter has been added.

Summary of the Office Action

As a preliminary matter, the Detailed Action of the Office Action fails to identify a formal rejection for any of claims 10, 11, or 18. Therefore, Applicant respectfully requests that the Office Action Summary be changed to accurately reflect that claims 10, 11, and 18 stand allowed because a rejection was not established.

Additionally, the Detailed Action of the Office Action appears to confuse the stated rejections. Specifically, the Detailed Action states that claims 14-17 and 19 are rejected as being unpatentable over Ishikawa in view of Hsu (see p. 2), but instead appears to rely on Ishikawa, Hsu, and Ghosh in regard to claim 14, which depends from claim 8 (see p. 5), and to rely on Ishikawa and Ghosh with regard to claims 15-17 and 19 (see pp. 5-6). Therefore, Applicant respectfully requests that the file history accurately recognize that the rejections of claims 14-17 and 19 are based on the references cited below for each of the identified claims.

However, Applicant respectfully submits that Ghosh merely qualifies as prior art 35 USC 102 (e), (f), and/or (g). Applicant respectfully submits that at the time the subject matter of this present application was conceived that the subject matter of Ghosh and the claimed invention were subject to an obligation of assignment to Intel Corporation of Santa Clara, California. Accordingly, Applicant respectfully requests the disqualification of Ghosh as a prior art reference.

Claims 1, 2, 4-7, 9, 20, and 22-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,510,052 to Ishikawa et al. (hereinafter "Ishikawa") in view of U.S. Patent No. 6,288,896 to Hsu (hereinafter "Hsu").

Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa in view of Hsu, and further in view of U.S. Patent Application No. 2004/0095721 to Ellsworth, Jr. et al. (hereinafter "Ellsworth").

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa in view of Hsu, and further in view of U.S. Patent No. 6,181,555 to Haley et al. (hereinafter "Haley").

Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa in view of Hsu, and further in view of U.S. Patent Application No. 2004/0223299 to Ghosh (hereinafter "Ghosh").

Claims 15-17 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa in view of Ghosh.

Response to Rejections under 35 U.S.C. § 103(a)

The Office Action rejected claims 1, 2, 4-7, 9, 14-17, 19, 20, and 22-24 under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa in view of Hsu, Ghosh, Ellsworth, and/or Haley. Applicant respectfully requests withdrawal of these rejections because the combination of cited references fails to teach or suggest all of the limitations of the claims.

CLAIMS 1-8

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa in view of Hsu. Applicant respectfully submits that claim 1 is patentable over the combination of cited references because the combination does not teach or suggest all of the limitations of the claim. Additionally, there is no suggestion or motivation to combine the references. Claim 1 recites:

> A notebook computer system, comprising:
>
> a first heat sink to passively dissipate heat from the notebook computer system;

a sensor system to monitor a temperature of a plurality of notebook computer system components, wherein the components comprise a display circuitry and a central processing system (CPU);

a second heat sink coupled to the first heat sink, wherein the second heat sink is enabled if the notebook computer system detects at least one of the components of the notebook computer system exceeds a predefined temperature threshold; and

a plurality of evaporators coupled to the components to remove heat from the components.

(Emphasis added).

In support of the rejection, the Office Action states, in part:

> Hsu teaches a heat dissipation system for a laptop computer using a **first heat pipe (30)** coupled to a display having a display circuitry and a **second heat pipe (22)** coupled to a CPU. See Fig. 2 and col. 4, lines 61-64.
>
> It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Ishikawa to include **evaporators coupled to (1) the display having display circuitry and (2) the CPU, as taught by Hsu**, since the device of Hsu would further reduce the amount of heat energy dissipating from the display housing, thereby maintaining acceptable temperature levels of the display for the computer user.

Office Action, October 12, 2005, p. 3 (emphasis added).

Applicant respectfully disagrees with the Office Action's characterization of the prior art because the cited combination of prior art fails to teach or suggest all of the limitations of the claim. In particular, Ishikawa and Hsu, either alone or in combination, do not teach or suggest a plurality of evaporators. Additionally, the Office Action fails to provide a motivation to combine the references.

Ishikawa is directed to an electronic apparatus with a heat radiator in a display unit. Ishikawa, Abstract. The Office Action correctly recognizes that Ishikawa does not teach a plurality of evaporators. Office Action, October 12, 2005, p. 3.

Hsu is directed to a heat pipe dissipation system for a laptop computer. Hsu, Abstract. In general, Hsu describes the operation of a heat pipe as having an evaporation portion and a condensation portion. Hsu, col. 1, line 54 to col. 2, line 1. The heat pipe taught by Hsu has two corresponding sections referred to as a first heat pipe and a second heat pipe. Hsu, col. 4, lines 61-63. The first heat pipe is thermally coupled to a heat generating component (e.g., processor) of the laptop. Hsu, col. 5, lines 43-45. Therefore, the first heat pipe appears to serve as the evaporation portion. Heat passes from the first

heat pipe to the second heat pipe, which is used to dissipate the heat either through the display panel or by direct exposure to the environment. Hsu, col. 5, line 63 to col. 6, line 10. (Hsu is silent as to any display circuitry and is further silent as to any interaction between the second heat pipe and any such display circuitry.) Therefore, the second heat pipe appears to serve as the condensation portion. The second heat pipe is not an evaporator. Given the only the first heat pipe potentially serves as an evaporator, and the second heat pipe serves as a condensation portion, Hsu teaches at most one evaporator. Consequently, Hsu does not teach a plurality of evaporators.

In contrast, claim 1 recites "a plurality of evaporators coupled to the components to remove heat from the components." For the reasons stated above, Ishikawa and Hsu, either alone or in combination, fail to teach or suggest all of the limitations of the claim. In particular, the cited references do not teach or suggest a plurality of evaporators coupled to the components to remove heat from the components.

Even if arguendo the combination of cited references were to disclose all of the limitations of the claim, the Office Action does not provide a proper motivation to combine the references. In particular, the Office Action fails to recognize that Hsu teaches away from combining the heat pipe of Hsu with the radiation and fan system of Ishikawa. Hsu expressly states that "it would be desirable to provide sufficient heat dissipation away from heat-generating electronic components without the need to use and electric fan." Hsu, col. 1, lines 36-38. Thus, the system of Hsu cannot be properly combined with the system of Ishikawa because the system of Ishikawa includes a fan, and Hsu specifically teaches a system to be used instead of a fan-based system. Given that the suggestion or motivation to combine must come from the prior art, and Hsu specifically teaches away from such a combination, the Office Action fails to provide a proper suggestion or motivation to combine the heat pipe system of Hsu with the radiation and fan system of Ishikawa.

Given that the cited references fail to teach or suggest all of the limitations of the claim, Applicant respectfully submits that claim 1 is patentable over the cited references. Moreover, the claim is patentable over the cited references because there is the Office Action fails to establish a motivation to combine the references. Accordingly, Applicant requests that the rejection of claim 1 under 35 U.S.C. § 103(a) be withdrawn.

Given that claims 2-8 depend from independent claim 1, which is patentable over the cited references, Applicant respectfully submits that dependent claims 2-8 are also patentable over the cited references. Accordingly, Applicant requests that the rejection of claims 2 and 4-7 under 35 U.S.C. § 103(a) be withdrawn.

CLAIMS 9-11 and 14

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa in view of Hsu. Applicant respectfully submits that claim 9 is patentable over the combination of cited references because the combination does not teach or suggest all of the limitations of the claim. Claim 9 recites:

> A method, comprising:
> dissipating heat from a notebook computer system through a display of a notebook computer system;
> monitoring a temperature of the notebook computer system components, wherein the components comprise a display circuitry and a central processing system (CPU); and
> dissipating heat from the notebook computer system by using **a plurality of evaporators** coupled to the components to remove heat from the components, wherein the heat is transported via a working fluid, a pump coupled to the evaporators to transport the working fluid to a heat exchanger, and a fan to remove heat from the heat exchanger if the notebook computer system detects at least one of the components of the notebook computer system exceeds a predefined temperature threshold.
> (Emphasis added).

In support of the rejection, the Office Action relies on the statements reproduced above in regard to claim 1.

Applicant respectfully disagrees with the Office Action's characterization of the prior art because the cited combination of prior art fails to teach or suggest all of the limitations of the claim. In particular, Ishikawa and Hsu, either alone or in combination, do not teach or suggest a plurality of evaporators. Additionally, the Office Action fails to provide a motivation to combine the references.

Ishikawa is directed to an electronic apparatus with a heat radiator in a display unit. Ishikawa, Abstract. The Office Action correctly recognizes that Ishikawa does not teach a plurality of evaporators. Office Action, October 12, 2005, p. 3.

Hsu is directed to a heat pipe dissipation system for a laptop computer. Hsu, Abstract. In general, Hsu describes the operation of a heat pipe as having an evaporation portion and a condensation portion. Hsu, col. 1, line 54 to col. 2, line 1. The heat pipe taught by Hsu has two corresponding sections referred to as a first heat pipe and a second heat pipe. Hsu, col. 4, lines 61-63. The first heat pipe is thermally coupled to a heat generating component (e.g., processor) of the laptop. Hsu, col. 5, lines 43-45. Therefore, the first heat pipe appears to serve as the evaporation portion. Heat passes from the first heat pipe to the second heat pipe, which is used to dissipate the heat either through the display panel or by direct exposure to the environment. Hsu, col. 5, line 63 to col. 6, line 10. (Hsu is silent as to any display circuitry and is further silent as to any interaction between the second heat pipe and any such display circuitry.) Therefore, the second heat pipe appears to serve as the condensation portion. The second heat pipe is not an evaporator. Given the only the first heat pipe potentially serves as an evaporator, and the second heat pipe serves as a condensation portion, Hsu teaches at most one evaporator. Consequently, Hsu does not teach a plurality of evaporators.

In contrast, claim 9 recites "dissipating heat from the notebook computer system by using a plurality of evaporators coupled to the components to remove heat from the components." For the reasons stated above, Ishikawa and Hsu, either alone or in combination, fail to teach or suggest all of the limitations of the claim. In particular, the cited references do not teach or suggest dissipating heat from the notebook computer system by using a plurality of evaporators coupled to the components to remove heat from the components.

Even if arguendo the combination of cited references were to disclose all of the limitations of the claim, the Office Action does not provide a proper motivation to combine the references. In particular, the Office Action fails to recognize that Hsu teaches away from combining the heat pipe of Hsu with the radiation and fan system of Ishikawa. Hsu expressly states that "it would be desirable to provide sufficient heat dissipation away from heat-generating electronic components without the need to use and electric fan." Hsu, col. 1, lines 36-38. Thus, the system of Hsu cannot be properly combined with the system of Ishikawa because the system of Ishikawa includes a fan, and Hsu specifically teaches a system to be used instead of a fan-based system. Given that the

suggestion or motivation to combine must come from the prior art, and Hsu specifically teaches away from such a combination, the Office Action fails to provide a proper suggestion or motivation to combine the heat pipe system of Hsu with the radiation and fan system of Ishikawa.

Given that the cited references fail to teach or suggest all of the limitations of the claim, Applicant respectfully submits that claim 9 is patentable over the cited references. Moreover, the claim is patentable over the cited references because there is the Office Action fails to establish a motivation to combine the references. Accordingly, Applicant requests that the rejection of claim 9 under 35 U.S.C. § 103(a) be withdrawn.

Given that claims 10, 11, and 14 depend from independent claim 9, which is patentable over the cited references, Applicant respectfully submits that dependent claims 10, 11, and 14 are also patentable over the cited references. Accordingly, Applicant requests that the rejection of claim 14 under 35 U.S.C. § 103(a) be withdrawn.

Furthermore, the rejection of dependent claim 14 should be withdrawn under 35 U.S.C. § 103(c). Applicant respectfully submits that Ghosh merely qualifies as prior art 35 USC 102 (e), (f), and/or (g). Applicant respectfully submits that at the time the subject matter of this present application was conceived that the subject matter of Ghosh and the claimed invention were subject to an obligation of assignment to Intel Corporation of Santa Clara, California. Accordingly, Applicant respectfully requests the disqualification of Ghosh as a prior art reference and the withdrawal of the rejection of claim 14 under 35 U.S.C. § 103(a).

CLAIMS 15-17 and 19

Claims 15-17 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa in view of Ghosh. The rejection of claims 15-17 and 19 should be withdrawn under 35 U.S.C. § 103(c). Applicant respectfully submits that Ghosh merely qualifies as prior art 35 USC 102 (e), (f), and/or (g). Applicant respectfully submits that at the time the subject matter of this present application was conceived that the subject matter of Ghosh and the claimed invention were subject to an obligation of assignment to Intel Corporation of Santa Clara, California. Accordingly, Applicant

respectfully requests the disqualification of Ghosh as a prior art reference and the withdrawal of the rejection of claims 15-17 and 19 under 35 U.S.C. § 103(a).

Furthermore, although no formal rejection of claim 18 is provided, it appears that the Office Action may have intended to reference U.S. Patent No. 4,688,147 to Ono. Nevertheless, claim 18 depends from independent claim 15, which is patentable, and thus is patentable over the potential combination of Ishikawa and Ono.

CLAIMS 20 and 22-24

Claim 20 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa in view of Hsu. Applicant respectfully submits that claim 20 is patentable over the combination of cited references because the combination does not teach or suggest all of the limitations of the claim. Claim 20 recites:

> A thermal management system, comprising:
> means for cooling a notebook computer system passively;
> means for detecting a temperature of a plurality of notebook computer system components, wherein the components comprise a display circuitry and a central processing system (CPU);
> means for removing heat from the components using **a plurality of evaporators** coupled to the components; and
> means for cooling the notebook computer system actively if a component of the computer system exceeds a threshold temperature.
> (Emphasis added).

In support of the rejection, the Office Action states, in part:

> Referring to claim 20, Ishikawa in view of Hsu discloses a thermal management system, comprising means for cooling a notebook computer passively (32), means for detecting a temperature of a plurality of notebook computer system components, wherein the components include a display (3), inherently including display circuitry, and a CPU (see Fig. 3 and the corresponding specification of Ishikawa), means for removing heat from the components using **a plurality of evaporators** coupled to the components (see Fig. 2 and col. 4, lines 61-64 of Hsu), and means for cooling the notebook computer system actively if a component of the computer system exceeds a threshold temperature (see Figs 3, 11 and 12, as well as col. 12, lines 57-65 of Ishikawa).
> Office Action, October 12, 2005, p. 6 (emphasis added).

Applicant respectfully disagrees with the Office Action's characterization of the prior art because the cited combination of prior art fails to teach or suggest all of the limitations of the claim. In particular, Ishikawa and Hsu, either alone or in combination,

do not teach or suggest a plurality of evaporators. Additionally, the Office Action fails to provide a motivation to combine the references.

Ishikawa is directed to an electronic apparatus with a heat radiator in a display unit. Ishikawa, Abstract. The Office Action correctly recognizes that Ishikawa does not teach a plurality of evaporators. Office Action, October 12, 2005, p. 3.

Hsu is directed to a heat pipe dissipation system for a laptop computer. Hsu, Abstract. In general, Hsu describes the operation of a heat pipe as having an evaporation portion and a condensation portion. Hsu, col. 1, line 54 to col. 2, line 1. The heat pipe taught by Hsu has two corresponding sections referred to as a first heat pipe and a second heat pipe. Hsu, col. 4, lines 61-63. The first heat pipe is thermally coupled to a heat generating component (e.g., processor) of the laptop. Hsu, col. 5, lines 43-45. Therefore, the first heat pipe appears to serve as the evaporation portion. Heat passes from the first heat pipe to the second heat pipe, which is used to dissipate the heat either through the display panel or by direct exposure to the environment. Hsu, col. 5, line 63 to col. 6, line 10. (Hsu is silent as to any display circuitry and is further silent as to any interaction between the second heat pipe and any such display circuitry.) Therefore, the second heat pipe appears to serve as the condensation portion. The second heat pipe is not an evaporator. Given the only the first heat pipe potentially serves as an evaporator, and the second heat pipe serves as a condensation portion, Hsu teaches at most one evaporator. Consequently, Hsu does not teach a plurality of evaporators.

In contrast, claim 20 recites "means for removing heat from the components using a plurality of evaporators coupled to the components." For the reasons stated above, Ishikawa and Hsu, either alone or in combination, fail to teach or suggest all of the limitations of the claim. In particular, the cited references do not teach or suggest means for removing heat from the components using a plurality of evaporators coupled to the components.

Even if arguendo the combination of cited references were to disclose all of the limitations of the claim, the Office Action does not provide a proper motivation to combine the references. In particular, the Office Action fails to recognize that Hsu teaches away from combining the heat pipe of Hsu with the radiation and fan system of Ishikawa. Hsu expressly states that "it would be desirable to provide sufficient heat

dissipation away from heat-generating electronic components without the need to use and electric fan." Hsu, col. 1, lines 36-38. Thus, the system of Hsu cannot be properly combined with the system of Ishikawa because the system of Ishikawa includes a fan, and Hsu specifically teaches a system to be used instead of a fan-based system. Given that the suggestion or motivation to combine must come from the prior art, and Hsu specifically teaches away from such a combination, the Office Action fails to provide a proper suggestion or motivation to combine the heat pipe system of Hsu with the radiation and fan system of Ishikawa.

Given that the cited references fail to teach or suggest all of the limitations of the claim, Applicant respectfully submits that claim 20 is patentable over the cited references. Moreover, the claim is patentable over the cited references because there is the Office Action fails to establish a motivation to combine the references. Accordingly, Applicant requests that the rejection of claim 20 under 35 U.S.C. § 103(a) be withdrawn.

Given that claims 22-24 depend from independent claim 20, which is patentable over the cited references, Applicant respectfully submits that dependent claims 22-24 are also patentable over the cited references. Accordingly, Applicant requests that the rejection of claims 22-24 under 35 U.S.C. § 103(a) be withdrawn.

CONCLUSION

It is respectfully submitted that in view of the remarks set forth herein, the rejections have been overcome. If the Examiner believes a telephone interview would expedite the prosecution of this application, the Examiner is invited to contact Jeffrey Holman at (408) 720-8300.

If there are any additional charges, please charge them to Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

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